A report for Universitätsklinikum Schleswig-Holstein/Campus Kiel on Shared Decision Making for coronary artery bypass grafting and percutaneous coronary intervention/stent in the treatment of triple vessel disease

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LIST OF ABBREVIATIONS

AE	Adverse event
AHA	American Heart Association
ASA	American Stroke Association
BMS	Bare metal stent
BMT	Best medical therapy
CABG	Coronary artery bypass grafting
CADTH	Canadian Agency for Drugs and Technologies in Health
CDSR	Cochrane Database of Systematic Reviews
CI	Confidence interval
DARE	Database of Abstracts of Reviews of Effects
DES	Drug-eluting stent
EQ-5D	European quality of life-5 dimensions
ESC	European Society of Cardiology
FAQ	Frequently asked question
GIN	Guidelines International Network
HTA	Health Technology Assessment
KSR	Kleijnen Systematic Reviews Ltd
MA	Meta-analysis
MACCE	Major adverse coronary and cerebrovascular events
MI	Myocardial infarction
NGCH	National Guideline Clearing House
NA	Not applicable
NMA	Network meta-analysis
OR	Odds ratio
PCI	Percutaneous coronary intervention
PICO	Participants, intervention, comparators, outcomes and study design
QoL	Quality of life
RCT	Randomised controlled trial
RD	Risk difference
RR	Risk ratio
SAQ	Seattle Angina Questionnaire
SD	Standard deviation
SDM	Shared decision making
SF-36	Medical outcomes study short-form 36
SR	Systematic reviews
TIMI	Thrombolysis in myocardial infarction
UK	United Kingdom
USA	United States of America

1. PROJECT OBJECTIVE

A key aim of the research project “Making SDM a reality” is to create interactive websites to inform patients as part of shared decision making (SDM).

To support this, Kleijnen Systematic Reviews Ltd (KSR) have prepared an evidence report with a synthesis of the literature underpinning the supporting evidence table of treatment options.

The topic of this evidence report is coronary artery bypass grafting (CABG) and percutaneous coronary intervention (PCI)/stent in the treatment of triple vessel coronary artery disease.

2. METHODS

2.1 INCLUSION CRITERIA

The research question underpinning the literature searches for this topic was developed in conjunction with clinical departments at Universitätsklinikum Schleswig-Holstein/Campus Kiel. The question was framed in terms of participants, intervention, comparators and outcomes (PICO), see Table 1.

As detailed below, literature searches were carried out using a stepwise approach to identify relevant studies according to study design. In the first step, searches aimed to identify relevant systematic reviews and guidelines. For this project, no topic-wide searches for randomised controlled trials (RCTs) or observational studies were conducted as relevant results were extracted from the identified literature.

Table 1: Inclusion criteria for searches

PICO	
Patients	Patients with coronary triple vessel disease
Intervention treatment	CABG
Control treatment	PCI (including drug eluting stents (DES))
Outcomes	• Adverse events/side effects (bleeding, infections) • Repeat revascularisation • Major adverse coronary and cerebrovascular events (MACCE), e.g. stroke, myocardial infarction (MI) • Invasiveness of procedure • Health-related quality of life (physical, psychological, emotional) • Hospitalisations/time in hospital/rehabilitation • Costs from treatment (including inconvenience) • Impact on activities of daily living
Study design	Guidelines, systematic reviews (SR), meta-analyses (MAs) of randomised controlled trials (RCTs), or of studies of lower evidence levels (non-randomised/observational studies), if needed. If no SRs/MAs are available, respective primary studies have to systematically searched.
Effect modification / Subgroups	Any indication of a specific effect modification or subgroup of patients from the evidence review, will be assessed.
CABG = Coronary Artery Bypass Grafting; DES = drug-eluting stent; PCI = Percutaneous Coronary Intervention; MA = meta-analysis; MACCE = Major Adverse Coronary and Cerebrovascular Events; MI = myocardial infarction; RCT = randomised controlled trial; SR = systematic review	

In consultation with the commissioner, questions frequently asked by patients (in respect of outcomes identified in the literature) were developed into an evidence table outline.

2.2 LITERATURE SEARCHES

Literature searches were carried out using a stepwise approach to identify relevant studies according to study design:

1. Systematic reviews and guidelines
2. Randomised controlled trials

3. Observational studies
4. Supplementary searches

Only in the event of no relevant systematic reviews or guidelines being identified (Step 1) were further searches to be conducted to identify RCTs (Step 2). If no RCTs were identified, only then would searches be undertaken to identify observational studies (Step 3).

The search strategies were developed specifically for each database and the keywords adapted according to the configuration of each database. Searches were limited by date range for systematic reviews and guidelines to 2012-2018. Where appropriate, searches were limited to remove animal studies. Searches were not limited by language or publication status.

Handling of citations

Identified references from the bibliographic database searches were downloaded into EndNote bibliographic management software for further assessment and handling. Individual records within the EndNote libraries were tagged with searching information, such as searcher, date searched, database host, database searched, strategy name and iteration, theme or search question. This enabled the information specialist to track the origin of each individual database record, and its progress through the screening and review process.

Quality assurance within the search process

The main Embase strategy was independently peer reviewed by a second KSR Information Specialist. Strategy peer review was informed by items based on the Canadian Agency for Drugs and Technologies in Health (CADTH) checklist.{, #3374}

2.3 SEARCH SOURCES

Systematic reviews and guidelines

The following systematic review specific databases were searched from 2012 to present:

- KSR Evidence (Internet): up to 2018/07/18 (https://ksrevidence.com/)
- Cochrane Database of Systematic Reviews (CDSR) (Wiley): issue 7 of 12, July 2018
- Database of Abstracts of Reviews of Effects (DARE) (Wiley): issue 2 of 4, April 2015
- Health Technology Assessment (HTA) database (Wiley): issue 4 of 4, October 2016
- Epistemonikos (Internet): up to 2018/07/18

The following guidelines resources were searched from 2012 to present:

- Guidelines International Network (GIN) (Internet): up to 2018/07/18 (http://www.g-i-n.net/library/international-guidelines-library)
- NICE Evidence (Internet): up to 2018/07/18 (www.evidence.nhs.uk/)

Full details of all search strategies are presented in Appendix 1.

RCTs

As the search for secondary sources and, thereby, reference checking was sufficient, no additional searches for primary studies were undertaken.

Observational studies

As the search for secondary sources was sufficient, no additional searches for observational studies were undertaken.

Supplementary searches

In addition to the formal searches documented above, a targeted search was conducted to identify studies specifically about shared decision making and CABG or PCI. Details of the search strategies used for this targeted search are presented in Appendix 1. Reviewers also conducted supplementary hand searches to identify potentially relevant references, e.g. guidance specific to Germany and websites of patient organisations. The bibliographies of included studies and review articles were also checked for additional relevant articles.

2.4 METHODS OF STUDY SELECTION, QUALITY ASSESSMENT AND DATA EXTRACTION

Two reviewers independently inspected the title and abstract of each reference identified by the search and determined the potential relevance of each article. For potentially relevant articles, or in cases of disagreement, the full article was obtained, independently inspected, and inclusion criteria applied. Any disagreements were resolved through discussion.

Data extraction

An evidence hierarchy was used to select the most appropriate study(ies) to populate the evidence table. Where more than one study could provide evidence for the table the most relevant studies were extracted using the following criteria: recency (most recent preferred), quality (highest quality preferred), representativeness (populations representative of the general target population preferred). Where there were gaps in the evidence table (no meta-analysis, systematic review or guideline available), as described before, relevant RCTs would have been searched for and extracted, and where no RCTs would have been identified, observational studies would have been used.

For each study, data were extracted by one reviewer and checked by another. Any disagreements were resolved by consensus.

3. RESULTS

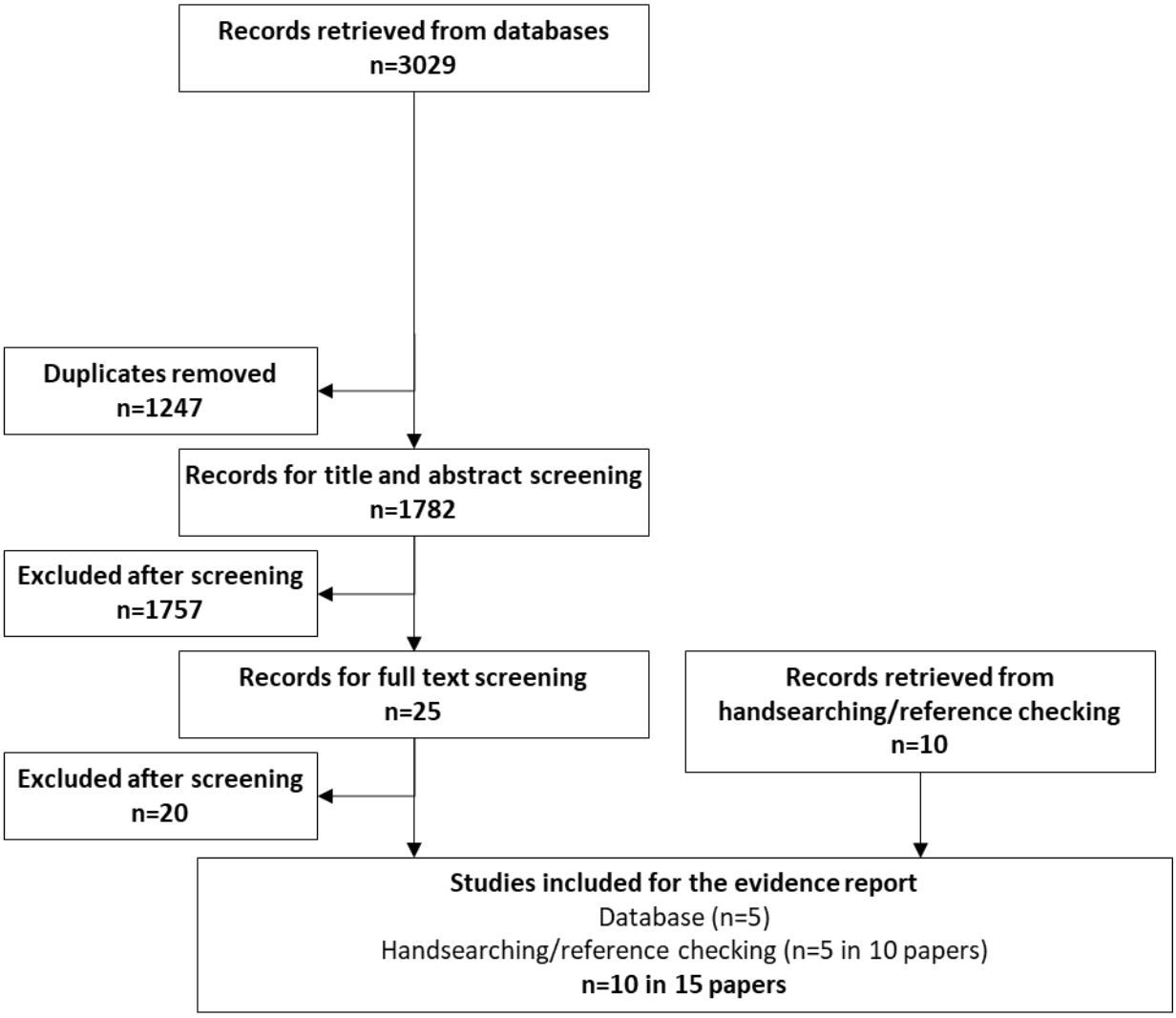
3.1 LITERATURE SEARCHES AND INCLUSION ASSESSMENT

For this evidence report, systematic searches for systematic reviews and guidelines were supplemented by hand searches.

Systematic searches were conducted on 18 July 2018 to identify relevant questions (frequently asked questions; FAQs) and to answer the clinical questions focusing on systematic reviews, meta-analyses and evidence-based guidelines. A total of 3,029 references were retrieved from these literature searches. After de-duplication, 1,782 titles and abstracts were screened by two reviewers. Full papers were obtained for 25 citations. After further review, five studies were selected for this project, i.e. a total of 20 were excluded.

Five additional studies were included from handsearching, three RCTs reported in eight publications discovered through reference checking and an additional guideline and meta-analysis obtained from Universitätsklinikum Schleswig-Holstein/Campus Kiel. Therefore, in total, 10 studies were included (See Table 2). A summary of the study selection process according to modified PRISMA reporting guidelines is reported in Figure 1.

Figure 1: Study selection process



3.2 Overview of the evidence

The information identified to answer the patient questions is given below organised by question and the underpinning evidence in Table 2.

Table 2: Studies populating the evidence table

Study ID	What is it and how does the treatment work?	How will the procedure protect me against cardio-vascular events?	Will I need re-operation?	Will it improve my quality of life?	How safe is the procedure?	Impact on daily life	Overall survival
Guideline							
ESC 2018{Neumann, 2018 #3373}		x	x				x
Meta-analyses that cited the RCTs in the population of interest i.e. at least 75% triple vessel disease							
Benedetto 2016{, #1020} α		x	x				x
Li 2014{, #148} β		x	x				x
Lim 2014{, #216} β		x	x		x		x
Sipahi 2014{, #180} β		x	x				x
Fanari 2015{, #616} β		x	x				x
Head 2018{Head, 2018 #3372} α		x*					
RCTs used in a de novo meta-analyses							
α BEST: Park 2015{, #3370}		x	x		x		x
α β SYNTAX: Cohen, 2011{, #3368;, #3369}, Mohr 2013{Mohr, 2013 #3365}, Serruys 2009{Serruys, 2009 #3366}		x	x	x	x	x	x
α β FREEDOM: Farkouh 2012{, #3358}		x	x				x

α, β indicate the meta-analysis in which each RCT was cited
*only stroke reported
ESC = European Society of Cardiology

What is it and how does the treatment work

Table 3 presents details on the two treatments and how these works.

Table 3: What is it and how does the treatment work?

Coronary Artery Bypass Graft (CABG)
A coronary artery bypass graft (CABG) is a surgical procedure used to treat coronary heart disease. It diverts blood around narrowed or clogged parts of the major arteries to improve blood flow and oxygen supply to the heart. CABG involves taking a blood vessel from another part of the body – usually the chest, leg or arm – and attaching it to the coronary artery above and below the narrowed area or blockage. This new blood vessel is known as a graft. A coronary artery bypass graft is carried out under general anaesthetic, which means being unconscious during the operation. It usually takes between three and six hours.
Based on https://www.nhs.uk/conditions/coronary-artery-bypass-graft-cabg/ and https://www.nhs.uk/conditions/coronary-angioplasty/alternatives/
Percutaneous Coronary Intervention (PCI) plus drug-eluting stent (DES)
A coronary angioplasty is a procedure used to widen blocked or narrowed coronary arteries (the main blood vessels supplying the heart). Coronary angioplasty is sometimes known as percutaneous coronary intervention (PCI). A thin flexible tube called a catheter will be inserted into one of your arteries through an incision in your groin, wrist or arm. This is guided to the affected coronary artery using an X-ray video. When the catheter is in place, a thin wire is guided down the length of the affected coronary artery, delivering a small balloon to the affected section of artery. This is then inflated to widen the artery, so blood can flow through it more freely when the deflated balloon is removed. A coronary angioplasty is performed using local anaesthetic, which means you'll be awake while the procedure is carried out. If a stent is being used, this will be around the balloon before it's inserted. The stent will expand when the balloon is inflated and remains in place when the balloon is deflated and removed. A drug-eluting stent (DES) is coated in a drug that reduces the risk of the artery blocking again, but also means that blood thinning agents need to be taken for up to one year following the procedure. A coronary angioplasty usually takes between 30 minutes and two hours.
Based on https://www.nhs.uk/conditions/coronary-artery-bypass-graft-cabg/ and https://www.nhs.uk/conditions/coronary-angioplasty/alternatives/

Protection against MI

The clinical evidence for the decision aid is presented in Tables 4 and 5.

- Table 4 presents the finding of a meta-analysis comparing CABG and PCI.
- Table 5 reports the evidence by SYNTAX subgroup.

Risk of stroke

The clinical evidence for the decision aid is presented in Tables 6 and 7.

- Table 6 presents the finding of a meta-analysis comparing CABG and PCI.
- Table 7 reports the evidence by SYNTAX subgroup.

Protection against angina

The clinical evidence for the decision aid is presented in Tables 8, 9, 10 and 11.

Need for repeat revascularisation

The clinical evidence for the decision aid is presented in Tables 12 and 13.

- Table 9 presents the finding of a meta-analysis comparing CABG and PCI.
- Table 10 reports the evidence by SYNTAX subgroup.

Table 4: Myocardial infarction following revascularisation

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Risk with CABG	Risk with PCI	Risk difference (PCI-CABG) (95% CI)
At 1 year							
SYNTAX: Serrys 2009{Serruys, 2009 #3366}; FREEDOM: Farkouh 2012{, #3358}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	0.031 (0.030 to 0.033)	0.052 (0.044 to 0.062)	0.021 (0.008 to 0.033)
*SYNTAX: Serrys 2009{Serruys, 2009 #3366}	1		1800	One RCT	0.031 (0.029, 0.033)	0.048 (0.045, 0.050)	0.016 (-0.002 to 0.034)
At 5 years							
SYNTAX: Mohr 2013{Mohr, 2013 #3365}; FREEDOM: Farkouh 2012{, #3358}; BEST: Park 2015{, #3370}	3	RCTs were of high risk of bias in terms of lack of blinding	4580	Meta-analysis	0.037 (0.028 to 0.050)	0.078 (0.063 to 0.095)	0.043 (0.022 to 0.064)
*SYNTAX: Mohr 2013{Mohr, 2013 #3365}; BEST: Park 2015{, #3370}	2		2680		0.037 (0.035, 0.039)	0.092 (0.090, 0.094)	0.038 (0.005, 0.072)
Obtained from a meta-analysis using inverse variance method and assuming random effects. *Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction and little change in the magnitude of the risk difference, but the difference was no longer statistically significant at 1 year. Note: a negative risk difference favours PCI							

Table 5: Myocardial infarction following revascularisation by SYNTAX severity score* at five years

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
SYNTAX: Mohr 2013{Mohr, 2013 #3365}	**SYNTAX score ≤22**	574	0.034 (-0.006 to 0.071)
	SYNTAX score 23-32	610	0.073 (0.033 to 0.113)
	SYNTAX score ≥33	605	0.058 (0.018 to 0.098)
Note: a negative risk difference favours PCI *By combining anatomic (which coronary arteries are involved) and clinical (such as age, gender) prognostic variables, the SYNTAX score II creates accurate mortality predictions to guide the choice between PCI and CABG for patients with multivessel coronary disease. The tool was validated in different registries and randomized trials. http://syntaxscore.com/index.php			

Table 6: Stroke following revascularisation

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Risk with CABG	Risk with PCI	Risk difference (PCI-CABG) (95% CI)
At 1 year							
SYNTAX: Serrys 2009{Serruys, 2009 #3366}; FREEDOM: Farkouh 2012{, #3358}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	0.020 (0.017 to 0.023)	0.007 (0.005 to 0.011)	-0.013 (-0.020 to -0.005)
*SYNTAX: Serrys 2009{Serruys, 2009 #3366}	1		1800	Single RCT	0.021 (0.019, 0.023)	0.006 (0.004, 0.008)	-0.016 (-0.026, -0.005)
At 5 years							
SYNTAX: Mohr 2013{Mohr, 2013 #3365}; FREEDOM: Farkouh 2012{, #3358}; BEST: Park 2015{, #3370}	3	RCTs were of high risk of bias in terms of lack of blinding	4580	Meta-analysis	0.035 (0.030 to 0.040)	0.022 (0.020 to 0.024)	-0.013 (-0.023 to -0.003)
*SYNTAX: Mohr 2013{Mohr, 2013 #3365}; BEST: Park 2015{, #3370}	2		2680		0.032 (0.028 to 0.038)	0.023 (0.021 to 0.026)	-0.010 (-0.022 to 0.003)
Obtained from a meta-analysis using inverse variance method and assuming random effects. *Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction and little change in the magnitude of the risk difference, but the difference was no longer statistically significant at 5 years. Note: a negative risk difference favours PCI							

Table 7: Stroke following revascularisation by SYNTAX* severity score at five years

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
SYNTAX: Mohr 2013{Mohr, 2013 #3365}	**SYNTAX score ≤22**	574	-0.020 (-0.046 to 0.007)
	SYNTAX score 23-32	610	-0.014 (-0.039 to 0.011)
	SYNTAX score ≥33	605	-0.004 (-0.032 to 0.025)
Note: a negative risk difference favours PCI *By combining anatomic (which coronary arteries are involved) and clinical (such as age, gender) prognostic variables, the SYNTAX score II creates accurate mortality predictions to guide the choice between PCI and CABG for patients with multivessel coronary disease. The tool was validated in different registries and randomized trials. http://syntaxscore.com/index.php			

Table 8: Seattle Angina Questionnaire (SAQ)* Angina frequency

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Mean with CABG	Mean with PCI	Mean difference (PCI-CABG) (95% CI)
At 1 month							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	0.09 (-0.82, 1.00)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			1.30 (-0.50, 3.20)
At 1 year							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	-1.16 (-1.91, -0.42)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			-1.70 (-3.30, -0.20)
At 5 years							
FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	-0.79 (-2.11, 0.53)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			-2.10 (-3.80, -0.40)

Obtained from a meta-analysis using inverse variance method and assuming random effects, obtained by pooling the mean difference from each of the two studies.
Note: a positive difference favours PCI
*The Seattle Angina Questionnaire (SAQ) is a 19-item questionnaire that measures five domains of health status related to coronary artery disease: angina frequency, physical limitations, quality of life, angina stability, and treatment satisfaction. Scores range from 0 to 100, with higher scores indicating fewer symptoms and better health status.
*Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction of the risk difference and little change in the magnitude and the difference became statistically significant at 5 years.

Table 9: Seattle Angina Questionnaire (SAQ)* Angina frequency by SYNTAX severity score* at five years

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
SYNTAX: Abdallah	**SYNTAX score ≤22**	553	0.91 (-2.02,3.83)

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
2017{Abdallah, 2017 #3375}	**SYNTAX score 23-32**	587	-3.26 (-6.18,0.33)
	SYNTAX score ≥33	583	-3.90 (-6.84,0.96)
Note: a postive risk difference favours PCI *By combining anatomic (which coronary arteries are involved) and clinical (such as age, gender) prognostic variables, the SYNTAX score II creates accurate mortality predictions to guide the choice between PCI and CABG for patients with multivessel coronary disease. The tool was validated in different registries and randomized trials. http://syntaxscore.com/index.php			

Table 10: Seattle Angina Questionnaire (SAQ)# Physical Limitation

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Mean with CABG	Mean with PCI	Mean difference (PCI-CABG) (95% CI)
At 1 month							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	9.54 (8.11, 10.97)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			12.00 (9.60, 14.30)
At 1 year							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	-1.7 (-2.96, -0.44)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			-1.20 (-3.30, 0.80)
At 5 years							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	-3.48 (-5.53, -1.43)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			-3.00 (-5.40, -0.50)
Obtained from a meta-analysis using inverse variance method and assuming random effects, obtained by pooling the mean difference from each of the two studies. Note: a positive difference favours PCI.							

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Mean with CABG	Mean with PCI	Mean difference (PCI-CABG) (95% CI)
[#]The Seattle Angina Questionnaire (SAQ) is a 19-item questionnaire that measures five domains of health status related to coronary artery disease: angina frequency, physical limitations, quality of life, angina stability, and treatment satisfaction. Scores range from 0 to 100, with higher scores indicating fewer symptoms and better health status. Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction and little change in the magnitude of the risk difference , but the difference was no longer statistically significant at 1 year.							

Table 11: Seattle Angina Questionnaire (SAQ)[#] Quality of Life

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Mean with CABG	Mean with PCI	Mean difference (PCI-CABG) (95% CI)
At 1 month							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	2.92 (1.56, 4.29)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			4.80 (2.50, 7.10)
At 1 year							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	-2.09 (-3.33 to -0.85)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			-2.50 (-4.70, -0.30)
At 5 years							
SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}; FREEDOM: Abdallah 2013{Abdallah, 2013 #3376}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	NR	NR	-2.33 (-4.25 to -0.4)
*SYNTAX: Abdallah 2017{Abdallah, 2017 #3375}	1		1800	Single RCT			-1.80 (-4.20, 0.50)
Obtained from a meta-analysis using inverse variance method and assuming random effects, obtained by pooling the mean difference from each of the two studies. Note:							

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Mean with CABG	Mean with PCI	Mean difference (PCI-CABG) (95% CI)
a positive difference favours PCI #The Seattle Angina Questionnaire (SAQ) is a 19-item questionnaire that measures five domains of health status related to coronary artery disease: angina frequency, physical limitations, quality of life, angina stability, and treatment satisfaction. Scores range from 0 to 100, with higher scores indicating fewer symptoms and better health status. *Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction and little change in the magnitude of the risk difference, although the difference was no longer statistically significant at 5 years.							

Table 12: Need for repeat revascularisation

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Risk with CABG	Risk with PCI	Risk difference (PCI-CABG) (95% CI)
At 1 year							
SYNTAX: Serrys 2009{Serruys, 2009 #3366}; FREEDOM: Farkouh 2012{, #3358}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	0.050 (0.040 to 0.062)	0.128 (0.118 to 0.138)	0.078 (0.060, 0.096)
*SYNTAX: Serrys 2009{Serruys, 2009 #3366};	1		1800	Single RCT	0.056 (0.054, 0.058)	0.133 (0.131, 0.135)	0.077 (0.050, 0.104)
At 5 years							
SYNTAX: Mohr 2013{Mohr, 2013 #3365}; BEST: Park 2015{, #3370}	2	RCTs were of high risk of bias in terms of lack of blinding	2680	Meta-analysis	0.082 (0.037 to 0.181)	0.163 (0.075 to 0.355)	0.088 (0.024, 0.151)
Obtained from a meta-analysis using inverse variance method and assuming random effects. *Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction and little change in the magnitude of the risk difference and no change in whether the difference was statistically significant. Note: a negative risk difference favours PCI							

Table 13: Need for repeat revascularisation by SYNTAX severity score* at five years

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
SYNTAX: Mohr 2013{Mohr, 2013 #3365}	**SYNTAX score ≤22**	574	0.072 (0.009 to 0.135)
	SYNTAX score 23-32	610	0.112 (0.054 to 0.171)
	SYNTAX score ≥33	605	0.175 (0.113 to 0.238)
Note: a negative risk difference favours PCI *By combining anatomic (which coronary arteries are involved) and clinical (such as age, gender) prognostic variables, the SYNTAX score II creates accurate mortality predictions to guide the choice between PCI and CABG for patients with multivessel coronary disease. The tool was validated in different registries and randomized trials. http://syntaxscore.com/index.php			

Health-related quality of life

Table 14 presents details on quality of life.

Table 14: Health-related quality of life

Study IDs	Mean CABG scores (SD)	Mean PCI scores (SD)	Mean difference during follow-up (PCI-CABG) (95% CI)
SF-36 physical component score at 1 month			
SYNTAX: Cohen 2011{, #3369}	39.1 (8.8)	46.7 (9.3)	7.8 (-6.9,8.6)
SF-36 physical component score at 1 year			
SYNTAX: Cohen 2011{, #3369}	48.1 (9.3)	47.5 (9.5)	-0.8 (-1.7,0.1)
SF-36 physical component score at 5 years			
SYNTAX: Abdullah 2017{Abdallah, 2017 #3375}	NR	NR	-0.4 (-1.5,0.7)
SF-36 mental component score at 1 month			
SYNTAX: Cohen 2011{, #3369}	45.9 (11.7)	49.2 (11.0)	3.2 (2.2,4.3)
SF-36 mental component score at 1 year			
SYNTAX: Cohen 2011{, #3369}	50.0 (9.9)	50.5 (10.3)	0.4 (-0.6,1.4)
SF-36 mental component score at 5 years			
SYNTAX: Abdullah 2017{Abdallah, 2017 #3375}	NR	NR	-1.5 (-2.7,-0.4)
EQ-5D at 1 month			
SYNTAX: Cohen 2011{, #3369}	0.769 (0.171)	0.853 (0.156)	0.08 (0.06,0.1)
EQ-5D at 12 months			
SYNTAX: Cohen 2011{, #3369}	0.850 (0.158)	0.855 (0.155)	0.00 (-0.02,0.02)

Study IDs	Mean CABG scores (SD)	Mean PCI scores (SD)	Mean difference during follow-up (PCI-CABG) (95% CI)
Note: a positive mean difference favours PCI			

Safety of procedure

Table 15: Safety of procedure (bleeding and infection)

Study IDs	Risk of complications		
	CABG	PCI	Risk difference (PCI-CABG) (95% CI)
Major bleeding			
SYNTAX: Cohen 2014{, #3368}	0.048 (42/870)	0.045 (40/896)	-0.003 (-0.023 to 0.016)
Thrombolysis in Myocardial Infarction (TIMI) major bleeding			
BEST: Park 2015{, #3370}	0.299 (132/442)	0.068 (30/438)	-0.231 (-0.274 to -0.188)
Fatal bleeding			
BEST: Park 2015{, #3370}	0.016 (7/442)	0.007 (3/438)	-0.009 (-0.021 to 0.003)
Wound Infection			
SYNTAX: Cohen 2014{, #3368}	0.041 (36/870)	0.00 (0/896)	-0.041 (-0.055 to -0.028)
Other Infection			
SYNTAX: Cohen 2014{, #3368}	0.062 (54/870)	0.004 (4/896)	-0.058 (-0.074 to -0.041)
Note: a negative risk difference favours PCI			

Impact on daily life

Table 16 presents details on risk of re-hospitalisations

Table 16: Re-hospitalisation risk

Study IDs	Year 1		Year 2		Year 3		Year 4		Year 5	
	CABG	PCI	CABG	PCI	CABG	PCI	CABG	PCI	CABG	PCI
Rehospitalisation										
SYNTAX: Cohen 2014{, #3368}	0.277	0.411	0.166	0.209	0.129	0.156	0.145	0.183	0.113	0.135
RD (95% CI) (PCI – CABG)	0.134 (0.090 to 0.178)		0.043 (0.006,0.080)		0.027 (-0.007,0.061)		0.038 (0.001,0.075)		0.022 (-0.011 to 0.055)	
RD =risk difference Note: a negative risk difference favours PCI										

Overall survival

The clinical evidence for the decision aid is presented in Tables 14 and 15.

- Table 17 presents the finding of a meta-analysis comparing CABG and PCI.
- Table 18 reports the evidence by SYNTAX subgroup.

Table 17: Mortality risk

Study IDs contributing to Meta-Analysis	No of studies	Risk of bias	No of patients		Anticipated absolute effects		
			Submodalities	Description	Risk with CABG	Risk with PCI	Risk difference (PCI-CABG) (95% CI)
At 1 year							
SYNTAX: Serrys 2009{Serruys, 2009 #3366}; FREEDOM: Farkouh 2012{, #3358}	2	RCTs were of high risk of bias in terms of lack of blinding	3700	Meta-analysis	0.037 (0.031 to 0.044)	0.038 (0.030 to 0.049)	0.001 (-0.015 to 0.0017)
*SYNTAX: Serrys 2009{Serruys, 2009 #3366}	1		1800	Single RCT	0.033 (0.031, 0.036)	0.043 (0.041, 0.045)	0.010 (-0.008, 0.028)
At 5 years							
SYNTAX: Mohr 2013{Mohr, 2013 #3365}; FREEDOM: Farkouh 2012{, #3358}; BEST: Park 2015{, #3370}	3	RCTs were of high risk of bias in terms of lack of blinding	4580	Meta-analysis	0.078 (0.062 to 0.097)	0.103 (0.084 to 0.126)	0.027 (0.010 to 0.044)
*SYNTAX: Mohr 2013{Mohr, 2013 #3365}; BEST: Park 2015{, #3370}	2		2680		0.105 (0.103, 0.107)	0.136 (0.134, 0.138)	0.024 (0.003, 0.046)
Obtained from a meta-analysis using inverse variance method and assuming random effects. *Sensitivity analysis removing FREEDOM (on the basis that all patients are diabetic) produced no change in the direction and little change in the magnitude of the risk difference and no change in whether the difference was statistically significant. Note: a negative risk difference favours PCI							

Table 18: Mortality risk following revascularisation by SYNTAX severity score at five years

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
SYNTAX: Mohr 2013{Mohr, 2013 #3365}	**SYNTAX score ≤22**	574	-0.008 (-0.055 to 0.039)
	SYNTAX score 23-32	610	0.019 (-0.034 to 0.071)

Study ID	Submodalities	No of patients	Risk difference (PCI-CABG) (95% CI)
	SYNTAX score ≥33	605	0.085 (0.029 to 0.141)
Note: a negative risk difference favours PCI			

3.3 ASSESSMENT OF THE CLINICAL REVIEW EVIDENCE

Details of the ten studies are presented in Table 19.

Table 19: Overview of studies populating the evidence table

Study ID	Participants	Interventions	Comparator	Setting Country	Study Design	Follow-up duration
ESC 2018{Neumann, 2018 #3373}	Multivessel disease	DES-PCI	CABG	Any	Guideline: refers to several meta-analyses and RCTs	Up to 5 years
Benedetto 2016{, #1020}	Multivessel disease	DES-PCI	CABG	Any	Meta-analysis: 5 RCTs (n=4563)	Up to 5 years
Li 2014{, #148}	Diabetes+ multivessel disease	DES-PCI	CABG	Any	Meta-analysis: 13 studies (n=6653)	Up to 5 years
Lim 2014{, #216}	Diabetes+ multivessel disease	DES-PCI	CABG	Any	Meta-analysis: 14 studies (n>5000)	Up to 5 years
Sipahi 2014{, #180}	Multivessel disease	PCI	CABG	Any	Meta-analysis: 6 RCTs (n=6055)	Unclear
Fanari 2015{, #616}	Multivessel disease	DES-PCI	CABG	Any	Meta-analysis: 6 RCTs (n=5123)	1, 2, 5 years
Head 2018{Head, 2018 #3372}	Multivessel and non-multivessel disease	DES-PCI and BMS-PCI	CABG	Any	Meta-analysis: 11 RCTs (n=11518)	1 and 5 years
SYNTAX: Cohen 2011{Cohen, 2011 #3369}, Cohen 2014{Cohen, 2014 #3368}, Mohr 2013{Mohr, 2013 #3365}, Serruys 2009{Serruys, 2009 #3366}	100% 3 vessel disease, SYNTAX score: mean (SD) 28.7 (11.5), 25% diabetic	PCI with 100% DES	CABG	Multinational	RCT	5 years
FREEDOM: Farkouh 2012{, #3358}	83% 3 vessel disease (17% 2	PCI with 100% DES	CABG	Multinational	RCT	5 years

Study ID	Participants	Interventions	Comparator	Setting Country	Study Design	Follow-up duration
	vessel), SYNTAX score: mean (SD) 26.1 (8.6), 100% diabetic					
BEST: Park 2015{, #3370}	77% 3 vessel disease (23% 2 vessel), SYNTAX score: mean (SD) 24.4 (7.8), 41% diabetic	PCI with 77% DES	CABG	South Korea, China, Malaysia and Thailand	RCT	5 years
DES-PCI = PCI including DES and BMS-PCI = PCI including BMS, although studies varied as to the extent to which DES or BMS were used						

4. DISCUSSION

4.1 STRENGTHS, LIMITATIONS AND UNCERTAINTIES

We can be reasonably confident that all relevant RCTs have been included given that we have been able to locate several recent meta-analyses comparing PCI with CABG. However, only one provided data at both one and five years follow-up.{Fanari, 2015 #616} Unfortunately, the six trials in this analysis were deemed to be too heterogeneous, some RCTs including relatively few patients with three vessel disease and/or comparing an older form of PCI i.e. without stents or with bare metal stents only as opposed to DES. Indeed only two of the RCTs were considered to be similar enough, SYNTAX with 100% and FREEDOM with 83% three vessel disease.{Serruys, 2009 #3366;Farkouh, 2012 #3358} Also, another RCT, BEST, was not included, but considered to be appropriate to pool with the other two.{Park, 2015 #3370} Therefore, a de novo meta-analysis has been performed (See Tables 4 to 13).

Unfortunately, not all relevant outcomes were available from all three trials at both one and five year follow-up and there was only evidence from SYNTAX that the treatment effect of PCI vs CABG varies by severity as measured by SYNTAX score.{Mohr, 2013 #3365} Nevertheless, as Table 20 shows, there appears to be little uncertainty in PCI being worse than CABG in risk of revascularisation. CABG also seems to be better in terms of risk of MI and overall survival, although with more uncertainty in less severe patients. It also appears to be better in terms of re-hospitalisation, except at one month, and for all subscales of the SAQ at 1 year and 5 years, except for angina frequency in those with the least severe SYNTAX score. In terms of quality of life, in the short term (1 month) PCI seems to be better. In the longer term (1 to 5 years), the picture is not as clear. PCI seems to be worse than CABG according to one instrument showing both physical and mental health related quality of life, but better in terms of another instrument measuring quality of life overall. However, there is reasonably clear evidence that PCI is better in terms of adverse events. Finally, PCI also seems to be better in terms of risk of stroke: although the evidence is less clear by SYNTAX subgroup, this could be explained by lower power to detect a difference. These results from our meta-analysis of only multivessel disease do largely confirm those in the meta-analysis by Head, which included single vessel disease studies. Head also reported outcomes at 30 days follow-up, finding that the 30 day rate of stroke was statisitically significantly lower for PCI (risk of 0.4% after PCI and 1.1% after CABG).

Table 20: Summary of effect of PCI vs CABG

Evidence	CABG	PCI
How will the procedure protect me against cardiac events?		
Stroke following revascularisation at 1 year		✓
Stroke following revascularisation at 5 year		✓[a]
Stroke following revascularisation at 5 year - SYNTAX score ≤22		✓
Stroke following revascularisation at 5 year - SYNTAX score 23-32		✓
Stroke following revascularisation at 5 year - SYNTAX score ≥33		✓
MI following revascularisation at 1 year	✓[a]	
MI following revascularisation at 5 year	✓	

Evidence		CABG	PCI
MI following revascularisation at 5 year - SYNTAX score ≤22		✓	
MI following revascularisation at 5 year - SYNTAX score 23-32		✓	
MI following revascularisation at 5 year - SYNTAX score ≥33		✓	
Angina: SAQ subscales: angina frequency	1 month		✓
	1 year	✓	
	5 year	✓[b]	
	5 year- SYNTAX score ≤22		✓
	5 year - SYNTAX score 23-32	✓	
	5 year - SYNTAX score 23-32	✓	
Angina: SAQ subscales: physical limitation	1 month		✓
	1 year	✓[a]	
	5 year	✓	
Angina: SAQ subscales: quality of life	1 month		✓
	1 year	✓	
	5 year	✓[a]	
Will I need re-operation?			
Re-operation following revascularisation at 1 year		✓	
Re-operation following revascularisation at 5 year		✓	
Re-operation following revascularisation at 5 year -SYNTAX score ≤22		✓	
Re-operation following revascularisation at 5 year - SYNTAX score 23-32		✓	
Re-operation following revascularisation at 5 year - SYNTAX score ≥33		✓	
Will it improve my quality of life?			
Physical health – 1 month			✓
Physical health – 1 year		✓	
Physical health – 5 years		✓	
Mental health – 1 month			✓
Mental health – 1 year			✓
Mental health – 5 years		✓	
Overall quality of life – 1 month			✓
Overall quality of life – 1 year			✓
How safe is the procedure?			
Major bleeding			✓
Thrombolysis in Myocardial Infarction (TIMI) major bleeding			✓
Fatal bleeding			✓
Wound infection			✓
Other infection			✓
Impact on daily life			
Rehospitalisation – 1 year		✓	
Rehospitalisation – 2 year		✓	
Rehospitalisation – 3 year		✓	
Rehospitalisation – 4 year		✓	
Rehospitalisation – 5 year		✓	
Overall survival			
Overall survival following revascularisation at 1 year		✓	
Overall survival following revascularisation at 5 year		✓	
Overall survival following revascularisation at 5 year – SYNTAX score ≤22		✓	
Overall survival following revascularisation at 5 year – SYNTAX score 23-32		✓	
Overall survival following revascularisation at 5 year – SYNTAX score ≥33		✓	

Evidence	CABG	PCI
tick = better, green highlight = statistically significantly better SAQ = Seattle Angina Questionnaire TIMI = Thrombolysis in Myocardial Infarction [a]sensitivity analysis removing one trial (on the basis that all patients are diabetic) produced a non-statistically significant risk difference [b] sensitivity analysis removing one trial (on the basis that all patients are diabetic) produced a statistically significant risk difference		

5. REFERENCES

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APPENDIX 1: SEARCH STRATEGIES

Table 21: Systematic reviews and guideline search results

Database	Dates	Results
CDSR	2012 - Issue 7 of 12, July 2018	140
DARE	2012 - Issue 2 of 4, Apr 2015	396
HTA	2012 - Issue 4 of 4, Oct 2016	48
KSR Evidence	2015 - 2018	694
Epistemonikos	Up to 18 July 2018	517
NICE Evidence	01/01/2012 - 19/07/2018	990
GIN	2012-18/7/2018	244
Total		**3029**
Total after de-duplication		**1782**

Search strategies

Cochrane Database of Systematic Reviews (CDSR) (Wiley): Issue 7 of 12, July 2018
Database of Abstracts of Reviews of Effects (DARE) (Wiley): Issue 2 of 4, April 2015
Health Technology Assessment Database (HTA) (Wiley): Issue 4 of 4, October 2016
Searched: 18.7.18

#1 MeSH descriptor: [Coronary Artery Bypass] explode all trees 5683
#2 (coronary or artery or aortocoron* or myocard* or heart) near/3 (bypass* or by-pass* or graft* or surgery or revascular*):ti,ab,kw 19109
#3 CABG:ti,ab,kw 3833
#4 (bypass* surgery or (valve near/4 surgery)):ti,ab,kw 12398
#5 #1 or #2 or #3 or #4 22885
#6 MeSH descriptor: [Percutaneous Coronary Intervention] explode all trees 5372
#7 ((percutaneous or transluminal) near/3 (revascular* or intervention* or angioplast*)):ti,ab,kw 10067
#8 (PCI or PPCI or PTCA):ti,ab 6706
#9 ((primary or balloon* or coronary) near/2 angioplast*):ti,ab,kw 6140
#10 #6 or #7 or #8 or #9 13876
#11 #5 or #10 32904
#12 (triple next vessel or three next vessel or 3vd):ti,ab,kw 275
#13 #11 or #12 Publication Year from 2012 to 2018 15165

CDSR = 140
DARE = 396
HTA = 48

KSR Evidence (Internet): Database last updated 2018 July 18
www.ksrevidence.com
Searched: 18.07.18

Query Results

1 ("coronary bypass" or "coronary artery bypass" or aortocoron* or "heart bypass") in Title, Bottom line
Date published: 2015–2018; 162
2 ("coronary graft" or "bypass graft" or "artery graft" or "heart graft" or "coronary grafting" or "bypass grafting" or "artery grafting" or "heart grafting") in Title, Bottom line
Date published: 2015–2018; 133
3 CABG in All text
Date published: 2015–2018; 176
4 ("bypass surgery" or "valve surgery") in All text
Date published: 2015–2018; 183
5 ("percutaneous coronary intervention" or "coronary angioplasty") in Title, Bottom line
Date published: 2015–2018; 256
6 (PCI or PPCI or PTCA) in Title, Bottom line
Date published: 2015–2018; 25
7 ((primary or balloon* or coronary) AND angioplast*) in All text
Date published: 2015–2018; 135
8 ("triple vessel" or "three vessel" or 3vd) in All text
Date published: 2015–2018; 5
9 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 694
Database last updated 19 Jun 2018, 8:22 p.m.

Epistemonikos (Internet): up to 2018 July 18 (Last five years)
https://www.epistemonikos.org/en/
Searched: 18.07.18

(advanced_title_en:(("coronary bypass" OR "coronary artery bypass" OR aortocoron* OR "heart bypass")) OR advanced_abstract_en:(("coronary bypass" OR "coronary artery bypass" OR aortocoron* OR "heart bypass"))) [Filters: protocol=no, classification=systematic-review, cochrane=missing, min_year=2013, max_year=2018] **517 records**

International Guideline Library (GIN) (Internet): up to 18 July 2018
http://www.g-i-n.net
Searched: 18.07.18

Search terms	**Results: 2012-2018**
cardiovascular	219
coronary	19
cardiac	34
myocardial	37
"coronary artery bypass"	2
"percutaneous coronary intervention"	0
"triple vessel"	0
angina	8
"chest pain"	7
Total retrieved	**326**

Total (without duplicates)	**244**

NICE Evidence Search: limited to guidance and SRs only (Internet): 2018/07/19
https://www.evidence.nhs.uk/
Searched 19.7.18

Search terms	**Results (Guidance): 01/01/2015-19/07/2018**
coronary	362
CABG	49
PCI	49
Total retrieved	**460**
Total (without duplicates)	**370**

Search terms	**Results (Systematic Reviews): 01/01/2015-19/07/2018**
coronary bypass	183
heart bypass	83
artery bypass	193
coronary graft*	164
bypass graft*	178
artery graft*	197
heart graft*	88
CABG	140
percutaneous coronary intervention	343
coronary angioplasty	53
PCI or PPCI or PTCA	270
primary angioplast*	67
balloon angioplast*	44
Total retrieved	**2003**
Total (without duplicates)	**620**

Table 22: Shared decision making search results

Results

Database	**Dates**	**Results**
Embase	1974-2018/week 30	185
MEDLINE	1946-2018/July week 2	189
MEDLINE IP, DU & Epub	July 19, 2018	23
CENTRAL	2012 - Issue 6 of 12, June 2018	39
Handsearch	23 July 2018	4
Total		**440**
Total after de-duplication		**319**

Search strategies

Cochrane Central Register of Controlled Trials (CENTRAL): Issue 6 of 12, June 2018
Searched: 23.7.18

#1 MeSH descriptor: [Coronary Artery Bypass] explode all trees 5683
#2 (coronary or artery or aortocoron* or myocard* or heart) near/3 (bypass* or by-pass* or graft* or surgery or revascular*):ti,ab,kw 19109
#3 CABG:ti,ab,kw 3833
#4 (bypass* surgery or (valve near/4 surgery)):ti,ab,kw 12398
#5 #1 or #2 or #3 or #4 22885
#6 MeSH descriptor: [Percutaneous Coronary Intervention] explode all trees 5372
#7 ((percutaneous or transluminal) near/3 (revascular* or intervention* or angioplast*)):ti,ab,kw 10067
#8 (PCI or PPCI or PTCA):ti,ab 6706
#9 ((primary or balloon* or coronary) near/2 angioplast*):ti,ab,kw 6140
#10 #6 or #7 or #8 or #9 13876
#11 #5 or #10 32904
#12 (triple next vessel or three next vessel or 3vd):ti,ab,kw 275
#13 #11 or #12 32970
#14 MeSH descriptor: [Decision Making] this term only 2290
#15 ((share* or sharing* or inform*) near/3 (decision* or deciding* or choice*)):ti,ab,kw 3067
#16 sdm:ti,ab,kw 231
#17 #14 or #15 or #16 5043
#18 #13 and #17 Publication Year from 2012 to 2018 41

CENTRAL = 39

Embase (Ovid): 1974-2018/week 30
Searched: 23.7.18

1 *coronary artery bypass surgery/ or *coronary artery bypass graft/ (34991)
2 ((coronary or artery or aortocoron* or myocard* or heart) adj2 (bypass* or by-pass* or graft* or surgery or revascular*)).ti,ab. (107118)
3 CABG.ti,ab. (28752)
4 (valve adj3 surgery).ti,ab. (13073)
5 exp *percutaneous coronary intervention/ (34426)
6 ((percutaneous or transluminal) adj3 (revascular* or intervention* or angioplast*)).ti,ab. (74393)
7 (PCI or PPCI or PTCA).ti,ab. (58459)
8 ((primary or balloon* or coronary) adj2 angioplast*).ti,ab. (30599)
9 (triple next vessel or three next vessel or 3vd).ti,ab. (268)
10 or/1-9 (222741)
11 shared decision making/ (2865)
12 ((share$ or sharing$ or inform$) adj3 (decision$ or deciding$ or choice$)).ti,ab. (38237)
13 sdm.ti,ab. (2386)

14 or/11-13 (40493)
15 10 and 14 (280)
16 limit 15 to yr="2012 -Current" (185)

MEDLINE: 1946-2018/July week 2
Searched: 23.7.18

1 exp Coronary Artery Bypass/ (49908)
2 ((coronary or artery or aortocoron* or myocard* or heart) adj2 (bypass* or by-pass* or graft* or surgery or revascular*)).ti,ab. (74697)
3 CABG.ti,ab. (14344)
4 (valve adj3 surgery).ti,ab. (7386)
5 exp Percutaneous Coronary Intervention/ (46966)
6 ((percutaneous or transluminal) adj3 (revascular* or intervention* or angioplast*)).ti,ab. (41081)
7 (PCI or PPCI or PTCA).ti,ab. (24420)
8 ((primary or balloon* or coronary) adj2 angioplast*).ti,ab. (21427)
9 (triple next vessel or three next vessel or 3vd).ti,ab. (71)
10 or/1-9 (155554)
11 Decision Making/ (84096)
12 ((share$ or sharing$ or inform$) adj3 (decision$ or deciding$ or choice$)).ti,ab. (23237)
13 sdm.ti,ab. (1452)
14 or/11-13 (102169)
15 10 and 14 (599)
16 limit 15 to yr="2012 -Current" (189)

MEDLINE Epub Ahead of Print (Ovid): July 20, 2018; MEDLINE In-Process & Other Non-Indexed Citations (Ovid): July 20, 2018; MEDLINE Daily Update (Ovid): July 20, 2018
Searched: 23.7.18

1 exp Coronary Artery Bypass/ (35)
2 ((coronary or artery or aortocoron* or myocard* or heart) adj2 (bypass* or by-pass* or graft* or surgery or revascular*)).ti,ab. (6319)
3 CABG.ti,ab. (1796)
4 (valve adj3 surgery).ti,ab. (1080)
5 exp Percutaneous Coronary Intervention/ (82)
6 ((percutaneous or transluminal) adj3 (revascular* or intervention* or angioplast*)).ti,ab. (5823)
7 (PCI or PPCI or PTCA).ti,ab. (3842)
8 ((primary or balloon* or coronary) adj2 angioplast*).ti,ab. (1430)
9 (triple next vessel or three next vessel or 3vd).ti,ab. (12)
10 or/1-9 (13880)
11 Decision Making/ (110)
12 ((share$ or sharing$ or inform$) adj3 (decision$ or deciding$ or choice$)).ti,ab. (5200)
13 sdm.ti,ab. (454)
14 or/11-13 (5564)
15 10 and 14 (23)